

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optical coherence tomography system comprising:
- [[-]] an optical source to emit an optical beam;
 - [[-]] a sample space;
 - [[-]] a photodetector;
 - [[-]] an interferometer set-up including
 - [[-]] a reference reflector, and
 - [[-]] a beam splitter-combination arrangement to
 - [[-]] split the optical beam into a reference beam to the reference reflector and a sample beam to the sample space, and to
 - [[-]] combine a reflected beam from the reference reflector with a returning beam from the sample space on-to form a combined beam, and provide the combined beam to a first

port of the photodetector, and
a further beam splitter configured to receive part of a
radiation from the beam splitter-combination arrangement and to
couple out an output beam to a second port of the photodetector;

wherein

[[-]] the optical source has an emission wavelength in the range of 1.6 μ m to 2.0 μ m, associated with a transition between an upper energy level and a lower energy level, and

[[-]] the optical source comprises an excitation system which generates stimulated emission from a pump level to the upper energy level.

2. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 1, wherein the optical source includes a Tm-doped ~~fibre~~ fiber placed in an optical cavity of cavity reflectors facing one another.

3. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors are anti-reflex coated for a wavelength range of 760nm to 810nm.

4. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors have a high-reflectivity for the wavelength range $2.2\mu\text{m}$ to $2.4\mu\text{m}$.

5. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors have a high-reflectivity for the wavelength range $2.2\mu\text{m}$ to $2.4\mu\text{m}$ and/or for the wavelength range $1.40\mu\text{m}$ to $1.5\mu\text{m}$.

6. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 2, wherein the optical cavity has reflectivities less than 0.04 for the wavelength range of $1.6\text{--}2.0\mu\text{m}$.

7. (Currently Amended) ~~An~~ The optical coherence tomography system as claimed in Claim 6, wherein

[[-]] an input cavity reflector has a high reflectivity ~~(coating)~~ for the wavelength range $1.6\mu\text{m}$ to $2.0\mu\text{m}$; and

[[-]] an output cavity reflector has a low-reflectivity

~~(coating)~~ for the wavelength range 1.6 μ m to 2.0 μ m.

Claims 8-9 (Canceled)